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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/859,497	05/18/2001	Michael E. Pilcher	108620	5041
25944	7590	10/17/2005		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER WARE, CICELY Q	
			ART UNIT 2634	PAPER NUMBER
DATE MAILED: 10/17/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/859,497

Applicant(s)

PILCHER, MICHAEL E.

Examiner

Cicely Ware

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6, 9-15, 17, 19 and 22-27 is/are rejected.
- 7) ☒ Claim(s) 3, 5, 7, 8, 16, 18, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 7/26/2005 have been fully considered but they are not persuasive. On Pgs 12-13 of applicant's **REMARKS**, applicant asserts that:

a. Cangiani teaches away from a "conventional waveform generator architectures can generally be used for communication systems, such an approach is not suitable for broadcast of the GPS navigation signals from space". Hence applicant has amended the independent claims to recite "a communication system". Examiner asserts that Cangiani discloses that such architecture can generally be used for communication systems (col. 1, lines 57-58) and discloses a "waveform generator" in Fig. 8 (82)). Therefore this insertion into the independent claims does not constitute patentability.

b. Applicant also asserts that Cangiani does not disclose "generating a combined signal that is a combination of a plurality of input signals". However examiner asserts that in (Fig. 8), Cangiani discloses generating a combined signal that is a combination of a plurality of input signals (86, 96).

c. Applicant has also amended claim 26 to recite a "first combiner that generates a combined signal that is a combination of a plurality of input signals" and "a second combiner that combines the attenuated input signals and other non-attenuated ones of the input signals to form the constant envelope combined signal". Examiner asserts that claim 26 inherits all the limitations of claim 1, wherein Cangiani discloses in

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Figs. 8 and 9 wherein "first combiner (96) that generates a combined signal that is a combination of a plurality of input signals (86)" and "a second combiner that combines the attenuated input signals (Fig. 9, (102, 106)) and other non-attenuated ones (Fig. 9 (104, 108)) of the input signals (Fig. 8 (86)) to form the constant envelope combined signal" (col. 4, lines 57-67 – col. 5, lines 1-17), where the input signals ((Fig. 8 (S1, S2, S3, S1S2S3), Fig. 9 (cos (wt)), sin (wt)) are the plurality of input signals into the first combiner (96), which subsequently go into a second combiner. Therefore claim 26 does not constitute patentability.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 6, 9, 10-15, 19, 22-27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cangiani et al. (US Patent 6,335,951.

(1) With regard to claim 1, Cangiani et al. discloses in (Fig. 3) a method for generating a constant envelop combined signal, comprising: generating a combined signal that is a combination of a plurality of input signals; attenuating amplitudes of selected ones of the input signals to generate attenuated input signals; and outputting (32) the attenuated input signal and other non-attenuated input signals for generating

the constant envelope combined signal (col. 2, lines 26-37, col. 4, lines 33-52, col. 5, lines 1-17).

However Cangiani et al. does not explicitly disclose attenuating amplitudes. However, it is the understanding of the examiner that attenuating power levels attenuates the amplitudes of the signal.

Thus claim 1 does not constitute patentability.

(2) With regard to claim 2, claim 2 inherits all the limitations of claim 1. Cangiani et al. further discloses in (Fig. 12) generating a similarity measurement between each of the input signals and the combined signal; and selecting ones of the input signals based on the similarity measurement (col. 5, lines 55-62, col. 6, lines 4-6, 9-13).

Cangiani et al. discloses correlation measurements. It is well known in the art that correlation measurements are similarity measurements.

(3) With regard to claim 6, claim 6 inherits all the limitations of claim 2. Cangiani et al. further discloses the selecting comprising: comparing the similarity measurements with one of a predetermined selection threshold value or a parameter based on a combined signal power value to generate comparison results; and selecting the ones of the input signals based on the comparison results (Fig. 12, col. 5, lines 55-62, col. 6, lines 9-13).

(4) With regard to claim 9, claim 9 inherits all the limitations of claim 1. Cangiani et al. further discloses generating attenuation values corresponding to each of the selected ones of the input signals (Fig. 12, col. 5, lines 55-62).

(5) With regard to claim 10, claim 10 inherits all the limitations of claim 9.

Cangiani et al. further discloses generating attenuation values comprising one of: selecting one of a predetermined attenuation value or an generated attenuation value based on a number of selected ones of the input signals; generating an attenuation value based on an amount that the combined signal exceeded one of a threshold or a combined signal power value; generating an attenuation value for each of the selected ones of the input signals based on a magnitude of the similarity measurements; or generating attenuation values for each of the selected ones of the input signals based on at least one of magnitudes of the similarity measurements, the combined signal power value, or the amount that the combined signal exceeded one of the threshold or the combined signal power value (Fig. 12, col. 5, lines 55-62).

(6) With regard to claim 11, claim 11 inherits all the limitations of claim 1.

Cangiani et al. further discloses wherein the combined signal is generated by summing the input signals (col. 4, lines 13-17).

(7) With regard to claim 12, claim 12 inherits all the limitations of claim 1.

Cangiani et al. further discloses in (Fig. 3) the generating of a combined signal is performed using analog or digital techniques (col. 2, lines 15-19).

(8) With regard to claim 13, claim 13 inherits all the limitations of claims 1, 2 and 6.

(9) With regard to claim 19, claim 19 inherits all the limitations of claim 6.

(10) With regard to claim 22, claim 22 inherits all the limitations of claim 9.

(11) With regard to claim 23, claim 23 inherits all the limitations of claim 10.

(12) With regard to claim 27, claim 27 inherits all the limitations of claims 1, 2 and 6.

4. Claims 4, 14, 15, 17, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cangiani et al. (US Patent 6,335,951) as applied to claims 1, 2, in view of Feher (US Patent 6,445,749).

(1) With regard to claim 4, claim 4 inherits all the limitations of claim 2. However Cangiani et al. does not disclose generating a similarity measurement comprising: cross-correlating each of the input signals with the combined signal.

However Feher discloses generating a similarity measurement comprising: cross-correlating each of the input signals with the combined signal (col. 11, lines 58-63, col. 12, lines 10-23).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Cangiani et al. in view of Feher to incorporate generating a similarity measurement comprising: cross-correlating each of the input signals with the combined signal in order to increase the spectral and power efficiency of modulated NRZ signals (Feher, col. 1, lines 16-21).

(2) With regard to claim 14, claim 14 inherits all the limitations of claim 1. Feher further discloses in (Fig. 18) an apparatus that outputs signals that combines into a constant envelope combined signal, comprising: a controller (104); and a memory (1802) coupled to the controller (Fig. 22, col. 12, lines 13-24, col. 13, lines 51-54, col. 15, lines 9-11, 21-26, 59-61, 64-65).

(3) With regard to claim 15, claim 15 inherits all the limitations of claims 14 and 2.

(4) With regard to claim 17, claim 17 inherits all the limitations of claims 15 and 4.

(5) With regard to claim 24, claim 24 inherits all the limitations of claim 14.

Cangiani et al. further discloses in (Fig. 3) wherein the combined signal is generated by summing the input signals.

(6) With regard to claim 25, claim 25 inherits all the limitations of claim 14.

Cangiani et al. further discloses the apparatus generates the combined signal using analog or digital techniques (col. 2, lines 10-21).

(7) With regard to claim 26, claim 26 inherits all the limitations of claims 1, 14 and 15.

Allowable Subject Matter

5. Claims 3, 5, 7, 8, 16, 18, 20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses a method for generating a constant envelope signal. Prior art references show similar methods but fail to teach: **“multiplying sample values of each of the input signals with corresponding values of the combined signal to generate products”**, as in claim 3; **“the cross-correlating comprising: sweeping one of each of the input signals and the combined signal pass each other; and generating a dot product for each sweep increment between**

overlapping portions of each of the input signals and the combined signal”, as in claim 5; “the selecting comprising: comparing the similarity measurements with each other; and selecting N number of input signals that correspond to N largest similarity measurements, where N is a positive integer and determining a value for N by empirical analysis of combined signals”, as in claim 7 and 8; “wherein the similarity measurement device generates the similarity measurement by multiplying sample values of each of the input signals with corresponding values of the combined signal to generate products, and summing the products to form the similarity measurement”, as in claim 16; “wherein the cross-correlating comprises: sweeping one of each of the input signals and the combined signal pass each other; and generating a dot product for each sweep increment between overlapping portions of each of the input signals and the combined signal”, as in claim 18; “wherein the attenuation value generator selects the ones of the input signals by: comparing the similarity measurements with each other; and selecting N number of input signals that correspond to N largest similarity measurements, where N is a positive integer, as in claim 20; and “wherein a value for N is determined by empirical analysis of combined signals”, as in claim 21.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 571-272-3047. The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cicely Ware

cqw
October 12, 2005


STEPHEN CHIN
SUPERVISORY PATENT EXAMINE
TECHNOLOGY CENTER 2600